



Authorizations and Permits for Protected Species (APPS)

File #: 14210
Title: Application for a scientific research permit
Modification: 2

Applicant Information

Name: ' LGL Alaska
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Project Information

File Number: 14210

Application Status: **Application Complete**

Project Title: Application for a scientific research permit under the ESA and MMPA: Photo identification studies of Cook Inlet beluga whales, Cook Inlet, Alaska.

Project Status: New

Previous Federal or State Permit:

Permit Requested:

- MMPA/ESA Research/Enhancement permit

Where will activities occur? US Locations including offshore waters

Research Timeframe: **Start:** 05/28/2009 **End:** 05/30/2014

Sampling Season/Project Duration: Field seasons: May 15-Oct 31 each year, 2009-2013.

Abstract: LGL Alaska Research Associates is applying for a scientific research permit under the Endangered Species Act and Marine Mammal Protection Act. We request the permit for a 5-year period (2009-2013) for the project "Photo-identification Studies of Cook Inlet Beluga Whales, Cook Inlet, Alaska". The purpose of the research (ongoing since 2005) is to use photo-identification methods to identify individual whales and to provide information about movement patterns, habitat use, survivorship, reproduction, and population size of Cook Inlet beluga whales (*Delphinapterus leucas*). The research will consist of photo-identification activities from small vessels and from shore-stations. Potential takes may be in the form of Level B harassment during vessel surveys. We request the equivalent of 30 vessel-based surveys per year, May-October. Based on the 2008 field season mean of 1.8 takes/vessel survey, we could potentially have a maximum of 54 takes annually. No other species listed under the ESA will be taken incidentally. We occasionally encounter harbor seals (*Phoca vitulina*) during surveys, but do not approach them. The project is located in Upper Cook Inlet, Southcentral Alaska

Project Description

- Purpose:** The objectives of the study are to:
1. Continue to build a photo-identification catalog of distinctively marked individual CIBWs, and to describe re-sight rates and discoveries of new individuals over time.
 2. Develop abundance estimates of CIBWs using mark-recapture models.
 3. Describe population characteristics of CIBWs, including age-class distribution, residency/movement patterns, habitat association, behavior, and social group structure.
 4. Determine life history characteristics of CIBWs, such as length of mother/calf bonds, frequency of reproduction, and survivorship.

Expected significance: The proposed photo-identification research will provide urgently-needed biological information about individual and population characteristics of CIBWs, including survivorship, reproduction, residency and movement patterns, and habitat use. This information is required to finalize a species recovery plan, and will provide information vital for designation of critical habitat. On a long-term basis, the project will provide data necessary to monitor and assess individual and population-wide characteristics such as length of mother/calf bonds, frequency of reproduction, and survivorship, and will allow for inter-annual comparisons of these characteristics, including estimates of population size. These long-term data will be useful to NMFS and other resource managers to help determine if the population is recovering, declining, or stable. In the 2008 Conservation Plan for Cook Inlet Beluga Whales (NMFS 2008a), NMFS endorsed photo-identification studies as a method of establishing a long-term data set to monitor the CIBW population, and to provide information on habitat use and residency in upper Cook Inlet.

Description: Dedicated surveys of Upper Cook Inlet are conducted from small vessels in the Susitna River Delta, Knik Arm, around the Port of Anchorage, and Chickaloon Bay/Southeast Fire Island, and from shore along Turnagain Arm and at the Port of Anchorage. Boat-based surveys of the lower Inlet, including around Kalgin Island, may occur 2009-2013, in addition to surveys of the upper Inlet. Whale groups are approached at no-wake speed (< 4 knots) by the survey vessel, then followed slowly, parallel to the group, matching the speed and heading of the group in order to obtain images of lateral sides of all individual whales while minimizing disruption to the group. At no time are whales approached at full throttle, and whales are never chased. When possible, we attempt to maneuver the survey vessel to parallel the group towards the leading edge of a traveling group, then slow the boat to idle, allowing the majority of the group to pass by the boat. Often the boat will first approach the group at a 45 degree angle, and then close the angle as we approach the group until the boat is parallel to the group, with a distance of greater than 50 meters between the vessel and the whales. Often whales will approach the boat once the boat has ceased its approach (at 50 m or more). If whales approach within ca. 2 m of the boat, the engine is put into neutral and/or turned off. Data collected during beluga whale group encounters includes counts of the estimated minimum group size, minimum number of whales present by color-classes, number of calves and newborns, group behavior, and digital photographs for individual whale identification. Data forms are used to record beluga whale sightings and environmental conditions. A GPS is used to record positions of whale groups and survey track lines. Digital photographs of beluga whales are collected using a Nikon D70, 6.1 megapixel digital SLR camera, with Nikkor 70-300 mm and 80-400 mm zoom telephoto auto focus lenses. After all individuals in the group have been photographed, or once observers determine that they are unable to photograph all whales in a group, the survey boat leaves the group and continues the survey, looking for new whale groups to photograph. Whale groups are never "tracked" (i.e., followed over time) with the survey vessel once photographic samples have been collected. Positions of beluga whale sightings and survey routes are mapped in ArcGIS 9 Version 9.1. Color composition for each group is determined from field counts and photographs obtained from each encounter. Primary and secondary behaviors of beluga whale groups are compared among the locations. Photographs are sorted according to quality with the use of ACDSee photo software. Images of belugas are cropped, separated into images of left and right sides of the whales, and then compared to images within the CIBW catalog. Sighting histories (i.e., dates and locations of sightings) are compiled for all identified beluga whales. All surveys are conducted with the on-site supervision of the principal investigator (McGuire) and/or co-investigators (Kaplan, Wade, Blees, or Baker). The NMFS Regional Administrator is informed in writing more than two weeks before initiation of on-site activities. Vessel surveys are not conducted on days when the PI is notified that NMFS/NMML is conducting aerial surveys for Cook Inlet beluga whales.

Dedicated surveys of Upper Cook Inlet are conducted from small vessels in the Susitna River Delta, Knik Arm, around the Port of Anchorage, and Chickaloon Bay/Southeast Fire Island, and from shore along Turnagain Arm and at the Port of Anchorage (McGuire et al. 2008). Boat-based surveys of the lower Inlet, including around Kalgin Island, may occur 2009-2013, in addition to surveys of the Upper Inlet. We hope to conduct 30 or fewer surveys per year during the 25 ice-free weeks between mid-May and October, for each of the five years of the permit. Our vessel-based surveys cover a pre-determined route of a given area (route determined by tidal stage, water depth, and navigational hazards), and are not line-transect surveys.

The vessel used to survey for beluga whales is a Zodiac ProMan9, 4.9-m rigid-hull inflatable with a 4-stroke 50 hp Yamaha motor. The survey boat usually carries one skipper and one crew; this two-person team also photographs the whales and records data. All skippers and crew have 3-4 field seasons of experience operating a research vessel around CIBWs. Anticipated approach distances for future research are based on 2008 survey data (McGuire 2008b): estimated mean distance between the survey vessel and the initial sightings of groups was 281.4 m (range 50-700 m) and mean minimum distance between whales and the survey vessel was 50.7 m (range 1-300 m); it should be noted the mean minimum distance included those instances where the boat motor was in idle or turned off and whales approached the boat. In the future we will record the distance of the group at the initial sighting, the minimum approach distance of the survey vessel to the whales, and the minimum distance between individual whales and the survey vessel (noting if the whale approached the vessel or if the vessel approached the whale).

Whale groups are approached at no-wake speed (< 4 knots) by the survey vessel, then followed slowly, parallel to the group, matching the speed and heading of the group in order to obtain images of lateral sides of all individual whales while minimizing disruption to the group. At no time are whales approached at full throttle, and whales are never chased. When possible, we attempt to maneuver the survey vessel to parallel the group towards the leading edge of a traveling group, then slow the boat to idle, allowing the majority of the group to pass by the boat. Often the boat will first approach the group at a 45 degree angle, and then close the angle as we approach the group until the boat is parallel to the group, with a distance of greater than 50 meters between the vessel and the whales. Often whales will approach the boat once the boat has ceased its approach (at 50 m or more). If whales approach within ca. 2 m of the boat, the engine is put into neutral and/or turned off. Data collected during beluga whale group encounters includes counts of the estimated minimum group size, minimum number of whales present by color-classes, number of calves and newborns, group behavior, and digital photographs for individual whale identification. We try to obtain photographs of the right and left sides of whales. Data forms are used to record beluga whale sightings and environmental conditions. A GPS is used to record positions of whale groups and survey track lines. Digital photographs of beluga whales are collected using a Nikon D70, 6.1 megapixel digital SLR camera, with Nikkor 70-300 mm and 80-400 mm zoom telephoto auto focus lenses. Following the materials and methods described in Durban and Parsons (2006), two laser pointer lights are mounted on either side of the camera's zoom lens, and the two resulting points of light projected onto the body of the whale as it is photographed allow for measurement of natural marks on whales and for estimation of body length. Once all individuals in the group have been photographed, or once observers determine that they are unable to photograph all whales in a group, the survey boat leaves the group and continues the survey, looking for new whale groups to photograph. Whale groups are never "tracked" (i.e., followed over time) with the survey vessel once photographic samples have been collected. Whale groups are only approached once per survey day, unless a group is initially difficult to photograph, abandoned by the survey vessel after < 5 minutes, and encountered again later in the day. In 2007, mean encounter duration was 37.9 minutes per group (McGuire 2008a). In 2008, mean encounter duration was 64.6 minutes per group (McGuire 2008b). Mean encounter duration was longer in 2008 in than in 2007 because group size was larger in 2008 (32.6 belugas/group and 1.9 minutes/beluga in 2008 and 11.8 belugas/group and 3.2 minutes/beluga in 2007).

Positions of beluga whale sightings and survey routes are mapped in ArcGIS 9 Version 9.1. Color composition for each group is determined from field counts and from cataloged photographs obtained during each encounter. Primary and secondary behaviors of beluga whale groups are compared among the locations. Photographs are sorted according to quality with the use of ACDSee photo software. Images of belugas are cropped, separated into images of left and right sides of the whales, and then compared to images within the CIBW catalog. Sighting histories (i.e., dates and locations of sightings) are compiled for all identified beluga whales. Markings used for photo-identification of individual beluga whales consist of natural marks from conspecifics, pigmentation patterns, scars from injury or infection, and marks left from satellite tags attached by NMFS 1999-2002; our research project does not apply marks to whales. All surveys are conducted with the on-site supervision of the principal investigator (McGuire) and/or co-investigators (Kaplan, Wade, Blees, or Baker). The NMFS Regional Administrator is informed in writing more than two weeks before initiation of on-site activities. Vessel surveys are not conducted on days when the PI is notified that NMFS/NMML is conducting aerial surveys for Cook Inlet beluga whales.

Supplemental Information

Status of Species:	The Cook Inlet beluga whale Distinct Population Segment (<i>Delphinapterus leucas</i>) has been listed as Endangered Species Act (ESA) Endangered and Marine Mammal Protection Act (MMPA) Depleted.
Lethal Take:	Not Applicable

Anticipated Effects on Animals:	Cook Inlet beluga whales are found regularly in the vicinity of large vessels and dredging equipment at the Port of Anchorage (Prevel-Ramos et al. 2006, Markowitz and McGuire 2007), and appear to be habituated to vessel noise and anthropogenic disturbance (NMFS 2008b). While there is no question that beluga whales can hear the photo-id survey vessel motor at low idle, they generally appear habituated to the presence of the survey vessel (McGuire 2008a, b). We do not anticipate that the proposed activity (vessel-based photo-identification surveys) will cause pain, suffering, or injury to the target species (Cook Inlet beluga whales). It is possible that vessel-based surveys may have behavioral effects on beluga whales, due to disturbance from the vessel motor noise and/or the physical presence of the vessel near whales (Lusseau and Bejder 2007). Very few perceptible possible short-term responses to the vessel have been noted, the most common being apparent affiliative or play behavior, such as approaching the vessel and bubble blowing under the vessel, exhibited most often by gray beluga whales. The nature and duration of an anticipated negative response could range from momentarily avoiding the survey vessel, to leaving the survey area completely (during the course of a survey day, or over a longer period). The later seems unlikely. Based on this and on results of long-term photo-identification studies of other small cetaceans elsewhere (Wells 1998), anticipated effects of this study on CIBW individuals and on the population as a whole are expected to be negligible.
Measures to Minimize Effects to Listed Species:	Whale groups are approached at no-wake speed (< 4knots) once per encounter, then followed slowly, parallel to the group, matching the speed and heading of the group in order to obtain images of lateral sides of all individuals while minimizing disruption to the group. If a whale approaches within ca. 2 m of the boat, the engine is put into neutral and/or turned off. At no time are whales approached at full throttle, and are never chased. The survey boat will leave a group when all individuals have been photographed, or if the group appears to be avoiding the survey boat, and/or if the group is difficult to photograph. If groups appear to be sensitive to approach by the survey vessel, exhibiting such behaviors as tail slaps, jaw claps, or "snorkeling behavior" (neither surfacing in the typical arch and roll nor diving, but remaining just at or below the surface to breath), the survey vessel will note the behavior and leave. Although photographing cow/calf pairs is a research priority, the survey vessel will not approach within 50 m of cow/calf pairs. The survey vessel will never intentionally come between a cow/calf pair; if this happens accidentally, the survey vessel will slowly move away from the pair. The survey vessel will not intentionally split whale groups. If mating or calving is observed, the behavior will be photographed quickly and the survey vessel will move away. The survey vessel takes care to avoid approaching groups in shallow areas on a falling tide, in order to avoid the risk of stranding to the whales and to the survey vessel.
Resources Needed to Accomplish Objectives:	Attached is a copy of our research proposal to the National Fish and Wildlife Foundation (NFWF) for funds for research in 2009-2010. NFWF has been funding this project annually since 2005.
Disposition of Tissues:	Not Applicable
Public Availability of Product/Publications:	Annual project reports are made available to the public and the scientific community via direct emails of PDFs of reports, and by making project reports publically available on the NOAA website http://www.fakr.noaa.gov/protectedresources/whales/beluga/research.htm#ci . In the future, we hope to publish research results in the journals Marine Mammal Science and the Journal of Conservation Biology.

Location/Take Information

Location
Research Area: Arctic **State:** AK **Stream Name:** Cook Inlet
Location Description: emphasis on the Susitna River Delta, Turnagain Arm, the Port of Anchorage, Knik Arm, and Chickaloon Bay, with occasional surveys of the lower Inlet.

Take Information

Line Ver	Species	Listing	Production	Life Stage	Sex	Expected Take	Takes Per Animal	Take Action	Observe				
		Unit/Stock	/Origin						/Collect Method	Procedure	Transport Record	Begin Date	End Date
1	Whale, beluga	Cook Inlet Stock (NMFS Endangered)	Wild	All	Male and Female	54	3	Harass	Survey, vessel	Photo-id	N/A	5/28/2009	5/30/2014

NEPA Checklist

1) If your activities will involve equipment (e.g., scientific instruments) or techniques that are new, untested,or otherwise have unknown or uncertain impacts on the biological or physical environment , please discuss the degree to which they are likely to be adopted by others for similar activities or applied more broadly.

No, our research activity will not involve equipment or techniques that are new; boat-based photo-identification surveys have been a standard research practice for cetacean studies for decades (Würsig and Würsig 1977).

2) If your activities involve collecting, handling, or transporting potentially infectious agents or pathogens (e.g., biological specimens such as live animals or blood), or using or transporting hazardous substances (e.g., toxic chemicals), provide a description of the protocols you will use to ensure public health and human safety are not adversely affected, such as by spread of zoonotic diseases or contamination of food or water supplies.

No, our activity does not involve the collection, handling, or transport of potentially infectious agents or pathogens. Our research activities involve taking photographs of free-swimming beluga whales in the wild. We do not collect biological specimens, only photographs.

3) Describe the physical characteristics of your project location, including whether you will be working in or near unique geographic areas such as state or National Marine Sanctuaries, Marine Protected Areas, Parks or Wilderness Areas, Wildlife Refuges, Wild and Scenic Rivers, designated Critical Habitat for endangered or threatened species, Essential Fish Habitat, etc. Discuss how your activities could impact the physical environment, such as by direct alteration of substrate during use of bottom trawls, setting nets, anchoring vessels or buoys, erecting blinds or other structures, or ingress and egress of researchers, and measures you will take to minimize these impacts.

Our activities will not take place in or near National Marine Sanctuaries, Marine Protected Areas, State National Parks or Wilderness Areas, or designated Wild and Scenic Rivers. At times our survey route may bring us near the Anchorage Coastal Wildlife Refuge and near the Susitna Flats State Game Refuge, but we do not enter the refuges and our activities will not impact the physical environment. Essential Fish Habitat does exist in the proposed study area of Upper Cook Inlet (www.nmfs.noaa.gov/habitat), but our activities will not impact the physical environment because in the course of our photo-identification surveys we will not be anchoring vessels or buoys, beaching the vessel along mudflats, or collecting fish. All boat launch and retrieval will occur at the Port of Anchorage Small Boat Launch.

4) Briefly describe important scientific, cultural, or historic resources (e.g., archeological resources, animals used for subsistence, sites listed in or eligible for listing in the National Register of Historic Places) in your project area and discuss measures you will take to ensure your work does not cause loss or destruction of such resources. If your activity will target marine mammals in Alaska or Washington, discuss measures you will take to ensure your project does not adversely affect the availability (e.g., distribution, abundance) or suitability (e.g., food safety) of these animals for subsistence uses.

Our work will not affect entities listed in or eligible for listing in the National Register of Historic Places, nor will it cause loss or destruction of scientific, cultural or historic resources. We will not be using or altering any of these resources, as we will simply be taking photographs from small boats of wild, free-swimming beluga whales.

5) Discuss whether your project involves activities known or suspected of introducing or spreading invasive species, intentionally or not, (e.g., transporting animals or tissues, discharging ballast water, use of equipment at multiple sites). Describe measures you would take to prevent the possible introduction or spread of non-indigenous or invasive species, including plants, animals, microbes, or other biological agents.

Our activity does not involve the collection, handling, or transport of biological or other material from one area to another. Our activity involves taking photographs of free-swimming beluga whales in the wild. We do not collect or transport biological specimens, other than photographs.

Project Contacts

Responsible Party:	Michael Link Anchorage, AK 99518 Phone: (907)562-3339 Email: mlink@lgl.com
Primary Contact:	Tamara McGuire 1101 E. 76th Ave. Suite B Anchorage, AK 99518 Phone: (907)562-3339 Email: tmcguire@lgl.com
Principal Investigator:	Tamara McGuire
Other Personnel:	
Name	Role(s)
Megan Blee	Co-Investigator

Attachments

Contact - Tamara McGuire: C9780T5McGuire Tamara Cv LGL April 2010.doc (Added Aug 11, 2010)

Lit Review - P14210T72009 LGL McGuire ESA MMPA SRP application.doc (Added Dec 22, 2008)

Status

Application Status:	Application Complete		
Date Submitted:	December 19, 2008		
Date Completed:	January 28, 2009		
FR Notice of Receipt Published:	February 10, 2009	Number:	0648-XN14
Comment Period Closed:	March 12, 2009	Comments Received:	Yes
		Comments Addressed:	Yes
Last Date Archived:	August 27, 2010		

- **MMPA/ESA Research/Enhancement permit**
 - Current Status:** Issued **Status Date:** May 28, 2009
 - Section 7 Consultation:** Formal Consultation
 - NEPA Analysis:** Environmental Assessment
 - Date Cleared by General Counsel:** May 27, 2009
 - FR Notice of Issuance/Denial Published:** June 5, 2009 **Notice Number:** 0648-XP63
 - Expire Date:** May 30, 2014
 - Analyst Information:**
 - 1) Kristy Beard Phone: (301)713-2289 Ext: 192
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 - 2) Amy Hapeman Phone: (301)713-2289 Ext: 163
Email: Amy.Hapeman@noaa.gov

Modification Requests

		Modifications Requested			Status	Date Submitted	Date Issued	Issued Version
Number	Title	Description						
1	remove Chris Kaplan from permit	Chris Kaplan, a co-investigator on the beluga photo-id project, just gave two-weeks notice last Friday. He and his family will be moving to Washington State, where his wife has accepted a great new job. He will no longer be working for LGL or working on the photo-id project. What do I need to do to remove his name as a CI on the permit, effective August 28, 2010?			Draft			

2	remove Chris Kaplan and Amy Baker from permit	Chris Kaplan, a co-investigator on the beluga photo-id project, just gave two-weeks notice last Friday. He and his family will be moving to Washington State, where his wife has accepted a great new job. He will no longer be working for LGL or working on the photo-id project, effective August 28, 2010? Amy Baker will be leaving LGL effective August 20, 2010 in order to attend graduate school in Scotland	Issued 08/18/2010 08/27/2010
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Reports

Reports Required						
Nbr	Report Type	Report Period		Date Due	Status	Date Received
		Start Date	End Date			
1	Annual	06/01/2009	05/30/2010	08/31/2010	Submitted	08/11/2010
2	Annual	06/01/2010	05/30/2011	08/31/2011	N/A	
3	Annual	06/01/2011	05/30/2012	08/31/2012	N/A	
4	Annual	06/01/2012	05/30/2013	08/31/2013	N/A	
5	Annual	06/01/2013	05/30/2014	08/31/2014	N/A	
6	Final	06/01/2009	05/30/2014	11/30/2014	N/A	